

TOBACCO INDUSTRY RESEARCH COMMITTEE  
350 FIFTH AVENUE NEW YORK 1, N. Y.

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W.C. 12/1/54

Application For Research Grant

Date: December 1, 1954

1. Name of Investigator: **H. R. Pratt-Thomas, M. D.**

2. Title: **Professor Pathology  
Medical College of South Carolina**

3. Institution & Address: **Medical College of South Carolina  
Charleston, South Carolina**

4. Project or Subject: **Biological Assay of Cancer Producing Factors in  
Cigarette Smoke Tars**

5. Detailed Plan of Procedure (Use reverse side if additional space is needed):

It is proposed that tars procured from cigarette smoke be applied to the cervix of the uterus of mice according to a technique that has been devised by this investigator. This technique was reported in a paper entitled: "Carcinogenic Effect of Human Smegma; an Experimental Study. A Preliminary Report" read before the American Cancer Society on October 18, 1954. (See attached abstract) This report concerns the experimental production of epidermoid carcinoma of the cervico-vaginal area of mice in a manner that should be practical for comparable application of such substances as the tars or extractives from cigarette smoke. From the results encountered in the previous experiment it appears that the cervix and contiguous vagina of mice is a susceptible area for the production of experimental surface epithelial growth. The nature of the epithelial surface of that location would appear to be more comparable to that of the respiratory area than an outer skin surface. It is proposed to use substances obtained from cigarette smoke in ways that would be approved by the TIRC Scientific Advisory Board and that these substances would, if possible, be obtained from such sources as may be approved or certified by the Scientific Advisory Board as produced out of methods that may be judged comparable to natural cigarette smoking.

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Salaries:

Research Assistant	\$3000.00
Technician	2700.00
Animal Caretaker	1200.00

Expendable Supplies: \$275.00 mice, food, histologic material, photography, etc.

Permanent Equipment: \$220.00 plastic animal cages, slide-file, mouse speculums, etc.

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THE CARCINOGENIC EFFECT OF HUMAN SMEGMA:  
AN EXPERIMENTAL STUDY

A Preliminary Report\*

By

H. R. Pratt-Thomas, M. D., and Henry C. Heins, M. D., Eugene Latham, M. D.,  
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National Cancer Institute of the National Institutes of Health, Public  
Health Service.

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## ABSTRACT

An experimental project was begun in 1950, in an attempt to determine whether whole human smegma or any of its component parts are definitely carcinogenic. Smegma has been implicated as a possible causative agent of at least two forms of human carcinoma by statistical inference gathered from various social and racial groups showing variation in physical and hygienic practices.

The rarity of carcinoma of the cervix among Jewish women and the virtual absence of carcinoma of the penis among individuals circumcized early in life furnish the two outstanding examples of carcinoma in which a causative relationship to smegma may be entertained.

A paste made from whole human smegma has been applied to the cervico-vaginal area of mice of the dba strain. This has been performed in two ways.

A metal vaginal speculum has been devised for the introduction of smegma or other substances into the mouse vagina. Through this is inserted an obturator having a cup end which holds a "dose" of the material which is to be applied.

The other method consists of placing smegma or its components in the mouse vagina and then closing the vaginal orifice with a subcuticular circular suture. Malignant neoplasms have resulted in the cervico-vaginal area of these mice following the use of whole human smegma in each of the techniques described above. The most impressive results were in a series of fifteen mice in which human smegma was applied intravaginally twice weekly. Of the twelve animals in this series which could probably be evaluated at the time of death or their being sacrificed, there were four overt invasive carcinomas, one early carcinoma with borderline invasion, and another showing changes indistinguishable from intra-epithelial carcinoma. The remaining six mice all showed marked epithelial hyperplasia of the cervico-vaginal mucosa. The injections in the six mice showing neoplastic changes were carried out over an average length of time of nineteen and one-half months, and had an injection average of ninety-nine.

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The minimum time and number of injections required to produce carcinoma was fourteen months and seventy-eight injections. It was hypothesized by us that the bacterial action in decomposing smegma might transform the cholesterol content of smegma into a carcinogenic agent.

Smegma has been analyzed from the bacteriological and chemical standpoint, and these various components are being tested at the present time alone and in combination with other factors such as estrogens. The contents of human ovarian dermoid cysts have been employed as control material.

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## 6. Budget Plan

Salaries	\$6,900.00
Expendable Supplies	275.00
Permanent Equipment	220.00
Overhead	739.50
Other	
Total	\$8,134.50

## 7. Anticipated Duration of Work: - 3 years

## 8. Facilities and Staff Available: H. R. Pratt-Thomas (Principal Investigator) - No Salary

We have a large and active Department of Pathology. All the usual major technical facilities are available such as microscopes, microtomes, tissue processing apparatus, etc. There are at least three major experimental projects supported by Grant-in-Aids in progress at the present time, two of which are under my direction.

The major expenses concern competent help, as furnished by a research assistant, technician (who would also handle records and minor secretarial work) and an animal caretaker.

## 9. Additional Requirements:

None

## 10. Additional Information (Including relation of work to other projects and other sources of supply):

It will be noted that it is proposed that such tars as may be secured from cigarette smoke by methods or from sources judged suitable and relevant by the TIRC Scientific Advisory Board in accordance with the adopted program of the Board.

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Signature /S/M H. Rawling Pratt-Thomas  
Direction of Project

/S/M H. Rawling  
Business Officer of the Institution